THE STRUCTURE OF THE BRITISH COLUMBIA ECONOMY: A LAND USE PERSPECTIVE

Planning and Statistics Division
Ministry of Finance and Corporate Relations
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ROUND TABLE

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PREFACE

"The Structure Of The British Columbia Economy: A Land Use Perspective" was prepared at the request of the British Columbia Round Table on the Environment and the Economy. It is part of a series of background reports dealing with issues that the Round Table considers important to the development of a sustainable development strategy in British Columbia.

The report was prepared for the Round Table by the Planning and Statistics Division of the Ministry of Finance and Corporate Relations. The Division maintains the British Columbia provincial economic accounts, and the provincial input-output model, and is also the provincial focal point for Statistics Canada data. All three elements were used to develop the analysis in this report.

The Round Table has not endorsed the report; neither does it represent official policy of the Ministry of Finance and Corporate Relations or the government of British Columbia. The report is intended to provide information that will assist the dialogue between the Round Table and the public.

C.J. Connaghan
Chairman
British Columbia Round Table
On the Environment And The Economy

EXECUTIVE SUMMARY

The Round Table has been asked to develop a strategy which encompasses both conservation and economic development. This paper seeks to assist by looking at the provincial economy and the driving forces behind job creation. This is done for a number of reasons, all of them related to the Round Table's core issues.

First, a basic shared description of the economy is important so that we can estimate the province's current dependence on the land base and natural resources. Second, an examination of economic trends reveals whether this dependency has changed significantly. Finally, an analysis of the economy's drivers permits us to systematically compare industries and determine the impact of their activities. This latter goal is perhaps the most important, as it seeks to cut through the welter of contradictory and often misleading industry economic impact assessments to set a common basis for discussion.

Ultimately, a thorough understanding of the provincial economy will help the Round Table address that most basic of questions:

- will the province be strongly affected by significant changes to current access to the land base and its resources?

A traditional examination of British Columbia GDP and employment statistics reveals the dominance of the services sector. Services account for over two-thirds of GDP, while three-quarters of provincial workers are employed by services industries.

While these numbers portray clear service sector dominance, the changes since 1961 are not radical: services have risen to 67.7 per cent of GDP in 1989, but only from 60.0 per cent in 1961. If one were tempted to claim that the issues related to access to natural resources were less pressing because British Columbia had evolved into a "post-industrial" economy, then 1961 would also have to be termed post-industrial. Hardly a widely accepted view.

Upon further analysis, natural resources and exports are also shown to be important contributors to the provincial economy. Natural resource industries currently account for nearly 13 per cent of provincial employment, while the importance of the export sector is seen through its 37 per cent contribution to GDP (as measured by expenditures).

The importance of exports also establishes a link between resource markets and the overall performance of the provincial economy. On average, over 80 per cent of total provincial merchandise exports are classified as natural resource products.

Given this dominance, changes such as a shift in commodity prices will lead to fluctuations in exports and provincial GDP.

To more thoroughly explore linkages within the British Columbia economy, the second part of this paper tries to determine which sectors function as drivers of the economy. To do this, we look at inter-industry linkages using a "closed" model input-output methodology.

When inter-industry linkages are taken into account, natural resource industries are found to be drivers of the provincial economy with significant employment effects on other sectors. Using a traditional approach, this paper estimates that in 1984 approximately 14.6 per cent of provincial employment was dependent on the resource sector. In contrast, 23.4 per cent of jobs were created by the resource sector when inter-industry linkages are taken into account. The linkage approach also finds that total exports have a combined employment effect of about one-third of all provincial jobs -- not surprising, given that much resource industry output is exported.

While the services sector has grown remarkably over the past thirty years, it does not, as a block, generate economic growth the way that the natural-resource dependent sectors do. In the latter half of the paper, we see that commercial services industries account for 30.2 per cent of all jobs, far below the traditional estimate of 54.1 per cent of total employment arising from traditional measures.

We also argue, throughout the paper, that the province's resource dependency has led to a volatile economy. While British Columbia has successfully diversified export markets, it has not similarly diversified its exported products. Any move away from a structure of exports which is so resource dominated would, therefore, have two appeals: it could reduce the economy's volatility, while reducing the load on the province's land base and resources.

What are the implications of this analysis?

- While resource industries' share of GDP has declined marginally over the past 30 years, the economy is still both open and very resource dependent.

- The trade-off issues facing the Round Table are critical. Unless it is clear that we do not, particularly in forestry, face future supply constraints, then we are inevitably talking about moving towards economic restructuring.

The prospect of economic restructuring and strategies which restrict resource access imply economic dislocation. However, for any economy, future prospects depend on

the ability to grow. In British Columbia, economic growth has often been the result of increasing resource access and land use. Obviously, this can not continue if earlier activities have been conducted on a non-sustainable basis. Indeed, economic dislocations are likely to increase the longer such non-sustainable practices prevail.

Any strategy of reducing resource dependency must address the issue of comparative advantage and replacing resource extraction with other job-generating activities. In looking at British Columbia's situation, one of the clear opportunities available is to use the quality of life and the beauty of the province as a magnet to attract dynamic services industries who are location independent. In other words, a careful analysis of British Columbia's comparative advantage may conclude that economic success may depend upon our ability to become a highly desirable place to work. While this may involve manufacturing (especially complex high value-added work), it would likely also involve service industries which are drivers independent of the province's resource industries. Whether the service work is software development, shipping line headquarters, international consulting or attracting foreign tourists, the opportunities for dynamic service industries are great if British Columbia can attract, and hold, those who make those sectors succeed.

In the end, therefore, we should not view an environment versus economy trade-off as fully describing British Columbia's choices. Indeed, the future of our economy may well depend upon the environmental quality we protect.

The facts about the British Columbia economy presented in this paper will not in themselves determine land use or sustainable development decisions but they do provide a basis for understanding how the British Columbia economy works, how it has grown, and how sectors are interrelated. Such an understanding must be in place before intelligent land use decisions can be made.

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"British Columbia should develop a Sustainable Development strategy aimed at integrating environmental conservation and economic development ..."

"The Sustainable Development Strategy should be comprehensive in scope, embodying the full range of environmental conservation and economic development issues."

TASK FORCE RECOMMENDATIONS 7 & 8.

THE STRUCTURE OF THE BRITISH COLUMBIA ECONOMY: A LAND USE PERSPECTIVE

INTRODUCTION

In much that the Round Table has heard, there is a clear sense that the economy and the environment are seen as an either/or choice. At a minimum, people use phrases like "tradeoffs" and "competing uses." The objective of this paper will be to present a description of the economy which can cast some light on core issues set out in the Round Table's mandate.

Our approach will be to describe one side of that presumed trade-off -- the economy. It is our hope that the economic description of where we stand today, twinned with a description of the state of the environment, will allow us to chart a more certain course for the future.

This paper will address the current structure of British Columbia's economy from a particular perspective: it will seek to examine the degree to which this province's economy is dependent on natural resources and hence the access to and use of the land base. This will be done through traditional economic measures, although we shall apply them in somewhat different ways.

It is important to stress that applying traditional measures in different ways does not constitute a new approach to economics. This paper is not trying to create a "Green GDP" measure, neither is it attempting to impute economic value to non-market considerations -- no matter how important they may be.

Let us begin, then, by looking at the basic measurement of the economy, the Gross Domestic Product (GDP), with its strengths and weaknesses.

PART I - TRADITIONAL MEASURES

GROSS DOMESTIC PRODUCT

Definitions and Concepts

The most commonly used measure of economic performance is *Gross Domestic Product* or GDP, which can be defined as the total unduplicated value of production which takes place within a geographical area. GDP is based on the concept of *value added*[1], which is defined as the difference between the value of total output and the cost of the inputs that are used in production.

Using GDP[2] to define economic performance has a number of advantages. GDP:

- permits comparisons between industries within an economy;
- allows comparisons between economies; and
- eliminates double-counting problems.

Within any economy, there is a circular flow of incomes and expenditures. For example, people are employed to produce goods or services and are paid for their efforts by firms. These incomes are, in turn, spent on purchasing goods and services. A measure of GDP can be determined by measuring incomes or expenditures or by totalling value added on an industry by industry basis.

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1 "Value added" is sometimes used to describe industries in which a great deal of processing of raw materials or unfinished goods occurs. However, within a National Accounts framework, the term "value added" does not refer to the degree of processing; it is simply a measure of the value which has been added to the goods and services from which a final product has been derived.

2 Using other measures to analyze economic activity frequently results in double-counting. For example, manufacturing shipments are frequently used to measure economic activity in the manufacturing sector. If a good, for example a metal casing, is produced by the metal fabricating industry and is then used as an input by the machinery and equipment industry, the value of the casing would be included in the manufacturing shipment statistics for both industries. By looking at value added, GDP does not count the metal casing twice. The metal casing is treated as an output of the metal fabricating industry and would thus be included in the metal fabricating industry's GDP estimate. However, as an input into the machinery and equipment industry, it would be subtracted from output in a calculation of GDP for that industry. The double-counting problem means that it is incorrect to use shipment or sales measures to determine the contribution to GDP of a particular industry.

In the system of economic accounts, the *Income Account* is derived by summing the incomes earned by the factors of production (i.e., land, labour and capital). The *Expenditure Account* describes how people, businesses, government, exporters and importers spend their incomes. Appendix 1 discusses the components of the two accounts and illustrates the relationship between them.

As much as knowing what is included in GDP, it is also important to know what is not counted. Because GDP is limited to market transactions, no value is ascribed to "unpaid labour." Similarly, environmental degradation is not accounted for unless it creates specific economic activity. While this may seem to be a shortcoming of the GDP as a measurement, it is actually a conscious limitation to define clearly what is involved.

Another aspect of GDP as it applies to industries is the rigidity of the Standard Industrial Classification (SIC). While the current system has brought consistency, some industries, like tourism, cannot be separated out from their components (transportation, lodging, etc.). This means that some important issues, like land use debates involving tourism, cannot be analyzed quantitatively within the current GDP framework.

Nevertheless, the SIC does allow us to make use of specific industry aggregations for comparison purposes. For example, we may wish to consider only the primary sector, which consists of the following resource-extraction (but not processing) industries:

- agriculture;
- fishing and trapping;
- logging and forestry; and
- mining.

Or, we may wish to create a vertically-integrated sector to compare with the rest of the economy. The forest sector is a common aggregation of this type, comprising: the primary extractive logging and forest industry, the wood manufacturing industries (e.g., sawmills, veneer and plywood industries), and the paper and allied industries, including pulp mills and the newsprint industry.

Another type of industry aggregation that is important to British Columbia is the resource-based sector. We define this sector to be the combination of:

- primary sector industries (as defined above);
- manufacturing sector industries;
  - food and beverage,
  - wood,

- paper and allied, and
- primary metal products; and

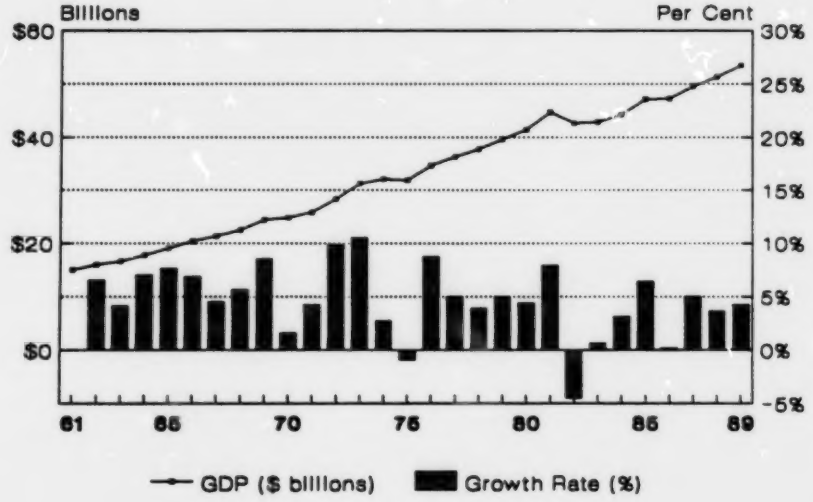
- utilities industries (which includes electricity, gas distribution, water and other utilities).

OVERALL TRENDS IN BRITISH COLUMBIA'S GROSS DOMESTIC PRODUCT

As can be seen in Figure 1, the province has experienced significant growth over the 1961 through 1989 period. Real GDP at market prices (measured in constant[3] 1981 dollars) increased from $15 billion in 1961 to $53.5 billion in 1989, representing an average annual growth rate of 4.7 per cent.

FIGURE 1

B.C. GDP AT MARKET PRICES: 1961-89



GDP is in constant (1981) dollars

3 In economic accounting, estimates are frequently presented in "real" or constant dollars. Constant dollar estimates are intended to measure actual changes in economic activity, rather than increases or decreases in the overall price level. They are constructed by removing the effects of price increases from the current or "nominal" dollar data.

Slowdowns or recessions occurred in 1974-75, 1982-83 and in 1986. The provincial economy did not recover quickly from the recession of the early 1980s. In fact, during the 1981 to 1986 period, the British Columbia economy grew at an average annual rate of only 1.1 per cent.

As will be shown in later sections, the volatility experienced by the British Columbia economy corresponds to international business cycles and especially to changing commodity markets.

Having established GDP as a widely accepted, if traditional, measure of economic performance, the next step is to examine the industrial structure of the provincial economy.

The Industry Account

GDP can also be presented on an industry by industry basis. This is generally done by totalling incomes by industry. For example, construction industry GDP can be calculated as the total of industry wages and salaries, supplementary labour income, corporate profits before taxes, miscellaneous investment income, unincorporated business income, inventory valuation adjustments and capital consumption allowances for all companies in the construction sector.

The industry account permits GDP to be broken down into goods and service industries. The goods sector includes industries such as agriculture, forestry and construction, while services encompasses industries such as education, services to business and wholesale trade.

The industry breakdown of GDP shows that, while the economy has grown, it has changed. The major trend is that the service sector is playing an increasingly important role. In 1989, the service-producing industries accounted for 68 per cent of British Columbia real GDP at factor cost[4], compared to 60 per cent in 1961. This means that the GDP share of the goods-producing industries fell from 41 per cent in 1961 to 33 per cent in 1989[5]. In monetary terms, real GDP for the service-producing industries in 1989 was $32.6 billion, compared to $15.8 billion for the goods-producing industries. These trends are illustrated by Figure 2.

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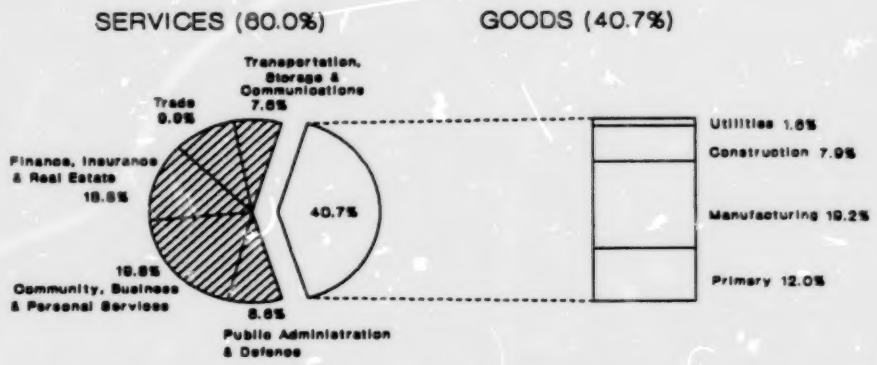
4 GDP is generally measured at *market prices*, although the industry account uses a *factor cost* valuation. GDP at market prices includes, in addition to GDP at factor cost, the effect of costs (such as sales taxes) which are built into the market price of a good or service but are not earned by factors of production.

5 The GDP shares of the goods and services sectors may not sum to 100 per cent due to an unallocated residual (see also Figure 2).

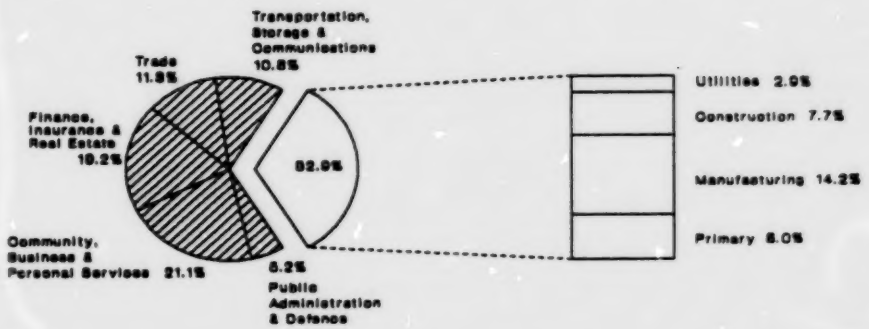
FIGURE 2

B.C. GDP BY INDUSTRY, 1961



Total - $13,311 millions (1981)

B.C. GDP BY INDUSTRY, 1989



Total - $48,187 millions (1981)

GDP at Factor Cost in constant (1981) dollars

A more detailed examination of the changes in the goods and services industries is presented in Table 1. A quick review of Table 1 - Part 1 shows that, despite growth in real terms, most goods industries accounted for a smaller share of GDP in 1989 than they did in 1961. For example, in constant dollar terms, the agriculture industry was worth $330 million in 1961, 2.5 per cent of GDP. By 1989, the industry was valued at $500 million but its share of GDP was only 1 per cent. More generally, manufacturing and primary industries' share of GDP has declined by about one-third, going from 31 per cent of real GDP in 1961 to 22 per cent in 1989.

There are a few goods industries that constituted a larger share of GDP in 1989 than they did in 1961. These include the residential construction industry, utilities, coal and some secondary manufacturers, such as machinery and equipment producers and electrical products firms. The latter two examples are particularly interesting as they include the "high-tech" industries (e.g., the computer industry). The data suggest that these industries are of increasing importance to the provincial economy.

Given that the service sector now accounts for a much larger share of GDP than it did in the 1960s, it is understandable that individual services industries have grown much more rapidly than their goods-producing counterparts. For example, the wholesale trade industry has increased its share of total real GDP from 3.9 per cent in 1961 to 4.7 per cent in 1989. The average annual real growth rate for wholesale trade is estimated at 5.5 per cent. Other services industries have grown even more rapidly -- 9.1 per cent for communications and 11.5 per cent for services to business. Indeed, as Table 1 - Part 2 shows, the service industries in the "total business sector" category have increased their share of total GDP from 40.1 to 52.6 per cent. The 12.5 per cent of GDP difference is larger than the entire 9.6 per cent contribution to 1989 GDP of the forest industry (primary forestry and logging, as well as manufacturing activities such as wood and paper production).

While Table 1 - Part 2 shows which services industries have contributed most to service sector growth, it does not identify the underlying trends responsible for the sector's rapid expansion. A number of factors appear to be causal. Anecdotal evidence suggests that the structure of the firm has undergone changes. Firms are now more concerned about make or buy issues and as a result, many companies contract out for services they used to perform themselves. A manufacturer will hire a transportation firm to handle product shipments, a media consultant to take care of advertising and an engineering company to design new production facilities. In other words, a goods sector company will often hire services sector support. Another trend over the past 20 years has been a shift from unpaid activities to paying service industry jobs. For example, the childcare industry has expanded as the number of women in the labour force has increased.

TABLE 1 - Part 1
B.C. GDP at Factor Cost by Industry - Goods - Millions of 1981 Dollars

	1961 GDP	Per cent of GDP	1989 GDP	Per cent of GDP	Average Annual Growth Rate
Primary	**1,567**	**11.8**	**3,791**	**7.9**	**3.2**
Agriculture	330	2.5	500	1.0	1.5
Fishing & Trapping	207	1.6	210	0.4	0.1
Logging & Forestry	573	4.3	1,096	2.3	2.3
Mining	457	3.4	1,985	4.1	5.4
Metals	257	1.9	580	1.2	2.9
Industrial Minerals	50	0.4	112	0.2	2.9
Petroleum & Natural Gas	115	0.9	582	1.2	6.0
Coal	20	0.2	641	1.3	13.2
Services related to mining	14	0.1	70	0.1	5.9
Manufacturing	**2,550**	**19.2**	**6,859**	**14.2**	**3.6**
Nondurables	1,409	10.6	2,832	5.9	2.5
Food & Beverage	441	3.3	715	1.5	1.7
Paper & Allied	708	5.3	1,436	3.0	2.6
Petroleum & Coal Products	39	0.3	71	0.1	2.2
Chemicals	104	0.8	138	0.3	1.0
Other Nondurables	117	0.9	473	1.0	5.1
Durables	1,227	9.2	4,027	8.4	4.3
Wood	649	4.9	2,059	4.3	4.2
Furniture & Fixtures	29	0.2	63	0.1	2.8
Primary Metals	200	1.5	385	0.8	2.4
Metal Fabricating	130	1.0	431	0.9	4.4
Machinery & Equipment	41	0.3	270	0.6	7.0
Transportation Equipment	74	0.6	226	0.5	4.1
Electrical Products	18	0.1	329	0.7	10.9
Non-Metallic Minerals	50	0.4	198	0.4	5.0
Miscellaneous	37	0.3	66	0.1	2.1
Construction	**1,047**	**7.9**	**3,713**	**7.7**	**4.6**
Residential	154	1.2	1,407	2.9	8.2
Non-residential	893	6.7	2,306	4.8	3.4
Utilities	**189**	**1.4**	**1,340**	**2.8**	**7.2**
Total Business Sector	5,354	40.2	15,703	32.6	3.9
Forestry Services	45	0.3	68	0.1	1.5
Utilities (Water Systems)	24	0.2	53	0.1	2.9
Total Non-Business Sector	69	0.5	122	0.3	2.1
TOTAL GOODS GDP	**5,423**	**40.7**	**15,825**	**32.9**	**3.9**
TOTAL SERVICES GDP	**7,985**	**60.0**	**32,592**	**67.7**	**5.2**
Unallocated residual	-96	-0.7	-250	-0.5	3.5
GDP at FACTOR COST	**13,311**	**100.0**	**48,167**	**100.0**	**4.7**

(numbers may not sum to totals due to rounding)

TABLE 1 - Part 2
B.C. GDP at Factor Cost by Industry - Services - Millions of 1981 Dollars

	1961 GDP	Per cent of GDP	1989 GDP	Per cent of GDP	Average Annual Growth Rate
Transportation & Storage	795	6.0	2,966	6.2	4.8
Communications	162	1.2	1,861	3.9	9.1
Wholesale Trade	515	3.9	2,279	4.7	5.5
Retail Trade	813	6.1	3,186	6.6	5.0
Finance, Insurance & Real Estate (FIRE)	1,843	13.8	9,245	19.2	5.9
Royalties	404	3.0	1,364	2.8	4.4
Rent	739	5.6	4,019	8.3	6.2
Other FIRE	699	5.3	3,863	8.0	6.3
Services to Business	96	0.7	2,047	4.2	11.5
Education	26	0.2	99	0.2	4.9
Health Services	243	1.8	939	1.9	4.9
Accommodation & Food	672	5.0	1,280	2.7	2.3
Other Services	177	1.3	1,431	3.0	7.7
Total Business Sector	5,342	40.1	25,333	52.6	5.7
Transportation & Storage	55	0.4	357	0.7	6.9
Education	729	5.5	2,226	4.6	4.1
Hospitals	470	3.5	1,167	2.4	3.3
Other Health Services	70	0.5	580	1.2	7.8
Other Services	176	1.3	437	0.9	3.3
Public Administration & Defence	1,143	8.6	2,493	5.2	2.8
Federal & Other	593	4.5	1,082	2.2	2.2
Provincial	309	2.3	749	1.6	3.2
Local	240	1.8	661	1.4	3.7
Total Non-Business Sector	2,643	19.9	7,259	15.1	3.7
TOTAL SERVICES GDP	**7,985**	**60.0**	**32,592**	**67.7**	**5.2**
TOTAL GOODS GDP	**5,423**	**40.7**	**15,825**	**32.9**	**3.9**
Unallocated Residual	-96	-0.7	-250	-0.5	3.5
TOTAL GDP at FACTOR COST	**13,311**	**100.0**	**48,167**	**100.0**	**4.7**

(numbers may not sum to totals due to rounding)

Using the GDP data, it is also possible to estimate the contribution to GDP of the natural resource sector. When only resource-based industries are considered, Table 2 shows that their GDP share has declined from 28.7 to 20.4 per cent, despite an average annual growth rate of 3.5 per cent.

Table 2
Resource-based sector share of GDP (at Factor Cost)

	1961	1989
Forest Sector	**14.8**	**9.7**
Logging & Forestry	4.6	2.4
Paper & Allied	5.3	3.0
Wood	4.9	4.3
Mining and Related	**4.9**	**4.9**
Mining	3.4	4.1
Primary Metals	1.5	0.8
Agriculture and Related	**7.3**	**3.0**
Agriculture	2.5	1.0
Fishing & Trapping	1.6	0.4
Food & Beverage	3.3	1.5
Utilities	**1.6**	**2.9**
TOTAL RESOURCE-BASED	**28.7**	**20.4**

The GDP by industry statistics clearly show that, while resource-based industries remain major contributors to provincial economic activity, over time the services industries have played an increasingly important role. Ostensibly, these numbers imply that the provincial economy is becoming less reliant on natural resources and hence less tied to their use of the land base. However, while it is clear that much economic activity within British Columbia can be classified as services, it is not yet possible to determine whether services support other industries or generate activity elsewhere in the economy - in other words, whether service industries drive the economy.

If the apparent trend of the increasing domination of services does indeed reflect a change in what drives the provincial economy, then the issues facing the Round Table would be less pressing. At a minimum, they would more likely be issues of transition. However, it must be remembered that while the share of the resource based sector of the economy has declined, its absolute size has increased. In other words, we are drawing more heavily on our natural resources and hence our land base.

GOVERNMENT SECTOR

The industry accounts tend to emphasize the roles of private sector firms in the provincial economy. However, the structure of the provincial economy also helps establish the government's fiscal position and hence its ability to spend in areas like health care and education.

Provincial Fiscal Position

The structure of the provincial economy in part determines sources of government revenues. During 1989/90, approximately 59 per cent of total provincial revenues were derived from taxation, 16 per cent were composed of federal government transfers, 4 per cent came from government Crown corporations and enterprises, and 9 per cent, or $1.2 billion, were directly attributable to natural resource fees and rents. The remaining 12 per cent of provincial revenues came from other sources including fees, licences and investments.

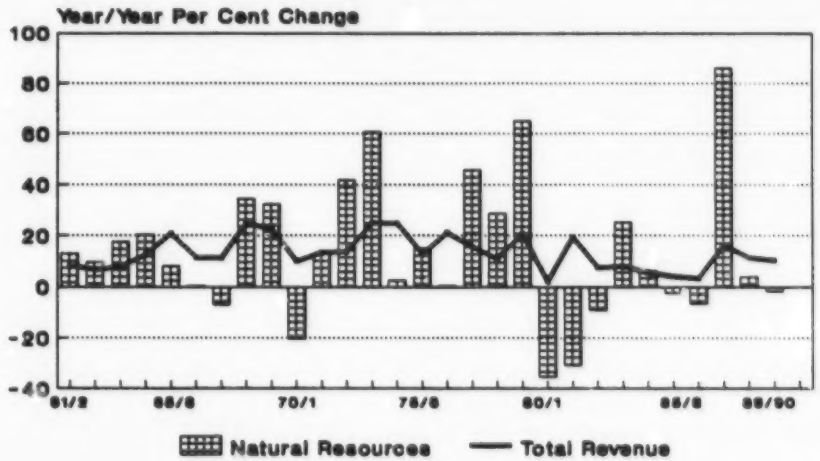
As with any government, British Columbia's fiscal flows are dependent on the state of the economy. In periods of strong economic growth, revenue collections will rise; while in slowdowns, revenues will decline. For example, with all tax rates held constant, in a period of high GDP growth and strong commodity prices:

- provincial income tax collections will rise due to higher employment levels;
- corporate income taxes will increase given higher corporate profit levels; and
- natural resource rents and fees will increase.

In British Columbia's case, the considerable contribution of natural resources to government revenues creates a particular source of revenue volatility. This occurs because British Columbia's resource sector is vulnerable to international business cycles, exchange rates and changing commodity prices. Natural resource revenues climb when demand for resource products is strong, while revenues fall if international demand weakens. Figure 3 shows the volatility of natural resource revenues over the past 30 years. While total government revenues are more stable, the figure reveals that they are affected by changes in the natural resource contributions.

FIGURE 3

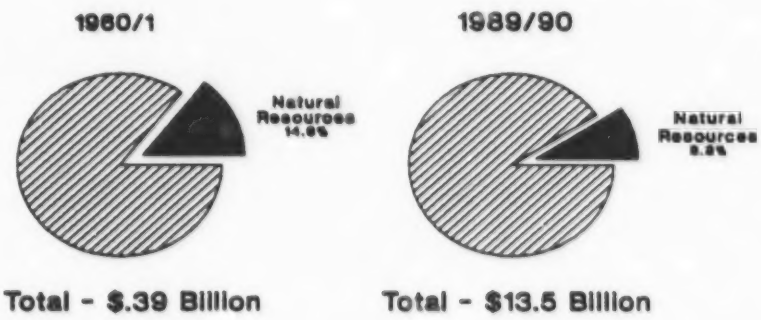
VOLATILITY OF B.C. GOVERNMENT REVENUE
1961/2-1989/90



As is shown in Figure 4, the current dollar contribution of natural resources to provincial revenues has declined over time from nearly 15 per cent in 1960/61 to just over 9 per cent in 1989/90. However, this picture shows only direct resource revenue. It does not, for example, show the proportion of total provincial personal income or sales taxes which are derived from people working in natural-resource related industries. Similarly, corporate income taxes collected are not attributed to industries or sectors.

FIGURE 4

B.C. GOVERNMENT REVENUE BY SOURCE
1960/1 & 1989/90



Total - $.39 Billion

Total - $13.5 Billion

Revenue is in current dollars

In summary then, while natural resource revenues as a source of government receipts have declined over time, they remain both important and volatile.

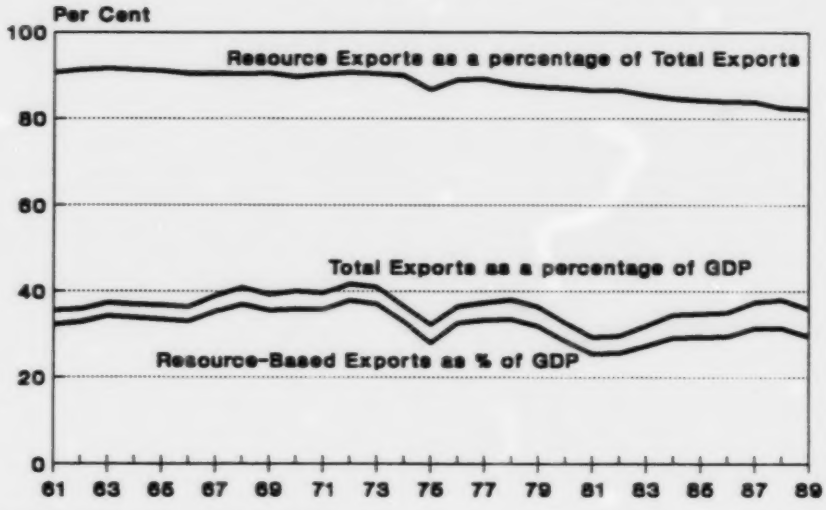
EXPORT SECTOR

In British Columbia, many industries depend on exports, both to other provinces and to the rest of the world. In 1989, approximately 37 per cent of total provincial GDP was generated by merchandise exports, 9 per cent from exports to the rest-of-Canada (ROC) and 28 per cent from the rest-of-world (ROW) category.

The percentage of GDP accounted for by total exports of British Columbia origin has declined slightly over the 1961 to 1989 period as shown in Figure 5. This figure not only shows the ongoing importance of exports but also the continued dominance of resource-based exports.

FIGURE 5

B.C. Exports* and GDP


Per Cent
100
80
60
40
20
0
Resource Exports as a percentage of Total Exports
Total Exports as a percentage of GDP
Resource-Based Exports as % of GDP
61 63 65 67 69 71 73 75 77 79 81 83 85 87 89

* International and to Other Provinces

Five commodities alone -- pulp, coal, copper, newsprint and softwood lumber -- accounted for approximately 65 per cent of British Columbia's total international exports in 1989. From an industry perspective, only two sectors -- forestry and mining -- accounted for over three-quarters of British Columbia's foreign exports. British Columbia's reliance on natural resource exports is clear from these figures.

The predominance of natural resource commodities in the provincial export portfolio means that the level of international commodity prices will have a significant impact on British Columbia. The graph following (Figure 6) shows the correlation between international price levels, as measured by the export commodity price index[6], and British Columbia GDP growth.

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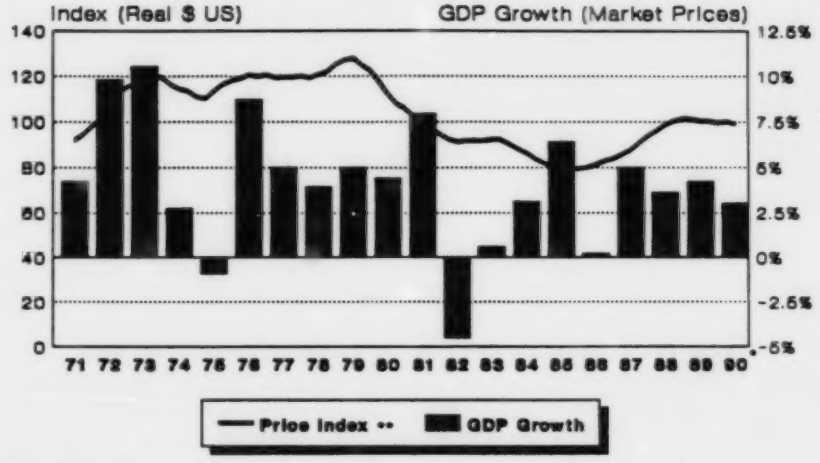
6 The export commodity price index is a weighted average of price indexes for 17 major British Columbia export commodities, including lumber, newsprint, pulp, copper, lead, zinc, natural gas, coal, salmon and other metal and forest products.

FIGURE 6

B.C. EXPORT COMMODITY PRICE INDEX AND REAL GDP GROWTH



* 1990 forecast
** Smoothed (5-quarter moving average)

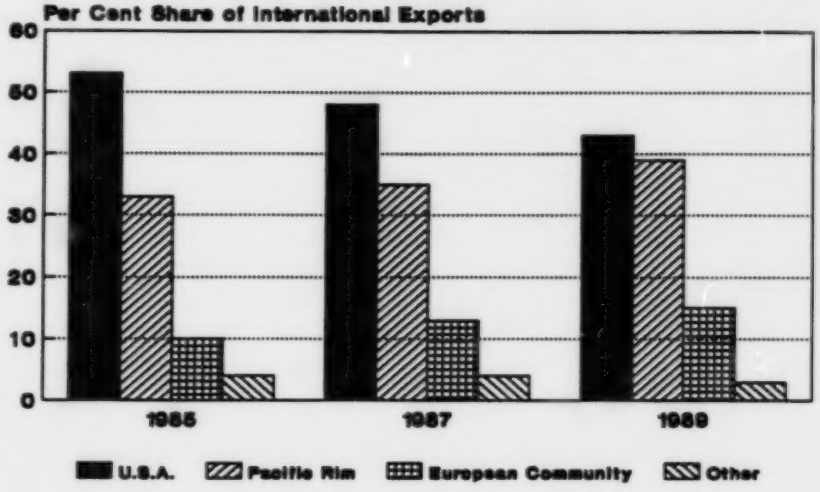
As the price index increases (indicating strong international demand), GDP growth also increases. Conversely, low international price levels correspond with low levels of GDP growth. The export commodity price index peaked prior to the 1975 slowdown and the 1981-82 recession, while remaining relatively flat over the 1982 through 1986 period.

Given that the province's heavy reliance on natural resource exports exposes the British Columbia economy to international business and commodity price cycles, export product diversification into value-added or re-manufactured products has been long sought after. Over the past decade, British Columbia has increased its exports of value-added products such as re-manufactured wood and telecommunications equipment from $0.35 billion in 1980 to $1.34 billion in 1989. While this represents a robust average annual growth of 14.5 per cent, value-added exports still totalled only 7.5 per cent of total exports in 1989.

Export diversification in terms of markets, as well as products, is also possible. While the United States remains the province's largest export market, provincial firms have diversified their export destinations over the past few years (see Figure 7).

FIGURE 7

B.C. EXPORT DESTINATIONS



In 1985, the United States received 53 per cent of British Columbia's exports, Pacific Rim countries 33 per cent and the European Community 10 per cent. Recent figures show that provincial international exports have shifted away from the United States towards the Pacific Rim countries. By 1989, the share of British Columbia's exports to Pacific Rim countries had grown to 39 per cent, while exports to the United States had fallen to 43 per cent. Exports to the European Community increased to 15 per cent.

It is not clear whether the diversification of provincial export markets will continue. Existing and potential international trade agreements are likely to be major determinants of future trends. For example, the Canada-United States Free Trade Agreement may lead to increased provincial exports to the United States.

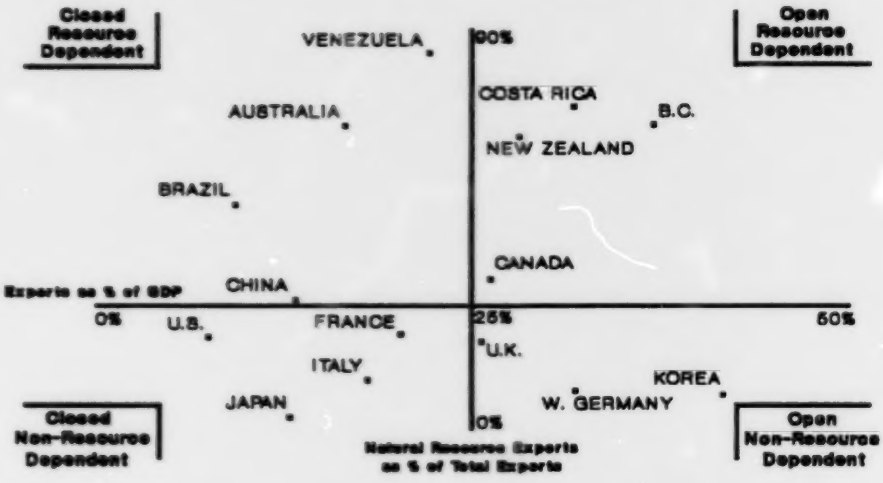
British Columbia is not alone in terms of its reliance on exports and natural resource products. As Figure 8 reveals, countries like New Zealand and Costa Rica can also be classified as open and resource dependent[7].

7 For purposes of this discussion, an open economy is defined as one in which exports contribute at least 25 per cent to GDP. An economy is defined to be resource-dependent if the resource-based share of exports is at least 25 per cent.

We have stressed the importance of exports and resource dependency. It may be useful to compare British Columbia with other economies. Korea, for instance, is an open economy, placed well in the bottom right quadrant of the chart. On the other hand, Venezuela is extremely resource-dependent, placed in the upper left-hand quadrant. It is noteworthy that British Columbia is both exceptionally resource-dependent and open, and located in the extreme top right quadrant of Figure 8.

FIGURE 8

Dependency on Natural Resources and Exports
Selected Economies, 1987



Most major western economies have a different profile. While they may be open or closed, they fall into the non-resource dependent category. Certainly this is the case for the United States and Japan. In fact, Canada is more reliant on natural resources than any other G-7 nation.

This section has shown that British Columbia may be characterized as a small economy highly dependent on resource-based international markets. This leaves the province exposed to changing international conditions, like the health of our major trading partners, and the value of the Canadian dollar.

Diversification is usually a primary objective for any trade-dependent economy. Although British Columbia has been successful in the geographical diversification of our **markets**, the province does not appear to have met with the same degree of success in diversifying the **products** sold in those markets.

JOB STRUCTURE OF THE PROVINCIAL ECONOMY

Thus far, we have looked at the concept of GDP and the value of exports. We should not forget that we are really talking about people and jobs. In this section, the focus will shift to that side of the economy.

Over the 1971 to 1989 period, the British Columbia labour force increased sharply from 910,000 to 1,578,000, an average annual increase of 3 per cent. Reasons for the increase include a larger population (3.1 million compared to 2.2 million) and a higher labour force participation rate. In 1971, the provincial participation rate (the proportion of the population aged 15 and over in the labour force), was 58 per cent. By 1989, the participation rate was 67 per cent. One of the major reasons for the increase in the participation rate is that more women have now joined the labour force. In 1971, the participation rate for women was 39 per cent, while for men it was 78 per cent. By 1989, the female rate had risen to 58 per cent, while the male rate declined slightly to 76 per cent.

Employment has also risen dramatically over the past 18 years. In 1971, British Columbia employment totalled 846,000, while in 1989, employment had risen by almost 600,000 to 1,435,000 jobs -- an average annual increase of 3 per cent. Reflecting the slowdown in provincial GDP, employment growth was also relatively flat in the 1982 through 1985 period, while the unemployment rate increased sharply.

Like GDP, provincial employment can be attributed to goods and services industries. While not identical to GDP, the provincial employment breakdown shows the same general trends with respect to goods and services. In 1989, goods accounted for almost 25 per cent of total employment and services roughly 75 per cent. Over time the goods sector's share of employment has declined from 34 per cent in 1971 to 26 per cent in 1989. This, of course, means that the service sector share has risen from 66 per cent in 1971 to 74 per cent in 1989.

Provincial employment can also be broken out into Standard Industrial Classification categories. Table 3 presents British Columbia employment by industry and activity for 1971 and 1989.

TABLE 3 - B.C. Employment by Industry, 1971 & 1989

	1971		1989		Average Annual Growth Rate
	Number ('000)	Per cent of Total	Number ('000)	Per cent of Total	
Agriculture	23	2.7	30	2.1	1.5
Fishing	3	0.4	8	0.6	5.6
Food & Beverage	19	2.2	19	1.3	0.0
Total, Agriculture & Food	**46**	**5.4**	**57**	**4.0**	**1.2**
Forestry	26	3.1	28	2.0	0.4
Wood Products	45	5.3	49	3.4	0.5
Paper & Allied	18	2.1	23	1.6	1.4
Total, Forestry Related	**90**	**10.6**	**100**	**7.0**	**0.6**
Mining	14	1.7	18	1.3	1.4
Primary Metals	8	0.9	8	0.6	0.0
Total, Mining & Related	**22**	**2.6**	**26**	**1.8**	**0.9**
Other Manufacturing	56	6.6	76	5.3	1.7
Construction	62	7.3	99	6.9	2.6
Utilities	9	1.1	10	0.7	0.6
Total, Goods Industries	**288**	**34.0**	**367**	**25.6**	**1.4**
Transportation & Storage	58	6.9	74	5.2	1.4
Communications	20	2.4	36	2.5	3.3
Wholesale Trade	43	5.1	72	5.0	2.9
Retail Trade	105	12.4	199	13.9	3.6
Finance, Ins. & Real Estate	43	5.1	90	6.3	4.2
Education & Related Services	55	6.5	89	6.2	2.7
Health & Related Services	54	6.4	122	8.5	4.6
Business Services	26	3.1	86	6.0	6.9
Accommodation & Food Services	44	5.2	114	7.9	5.4
Other Services	47	5.6	100	7.0	4.3
Public Administration	59	7.0	86	6.0	2.1
Total, All Service Industries	**558**	**66.0**	**1068**	**74.4**	**3.7**
Total, All Industries	**846**	**100.0**	**1435**	**100.0**	**3.0**

Note: Totals may not add due to rounding.

Source: Planning and Statistics Division
Ministry of Finance & Corporate Relations
Based on Statistics Canada Census (1971) and
Labour Force Survey (1989) data.

Within the goods sector, the share of total employment related to the primary industries (agriculture, forestry, fishing and mining) declined from 7.9 per cent to 6.0 per cent over the 1971 through 1989 period, while the manufacturing industries fell by nearly 5 percentage points. Similarly, the share of the three natural-resource groups (agriculture and food; forest related industries; and mining and related industries) declined from 18.6 per cent in 1971 to a current level of 12.8 per cent. However, in absolute terms, the total number of jobs in each of the goods sector categories either increased or stayed the same.

Within the services sector, public administration, transportation, education services and the wholesale trade industries show a declining share of total employment over the past 18 years. All other sectors show increased shares of total employment. The most dramatic increases are seen in the services to business industry (94 per cent) and the accommodation and food services industry (52 per cent).

This picture of employment confirms the earlier GDP analysis: the British Columbia economy has become dominated by the services industries which now account for three-quarters of employment.

Using employment data allows us do something else, too -- look at regional distributions of economic activity within the province. We can use the Labour Force Survey to compare the structure of employment in the Greater Vancouver and Victoria regions to that in the rest of the province. Table 4 presents survey data for 1984 and 1989.

Table 4 - Regional Distribution of Employment by Industry

INDUSTRY	VANCOUVER & VICTORIA EMPLOYMENT Number ('000)	Per cent of Total	REST OF PROVINCE EMPLOYMENT Number ('000)	Per cent of Total	INDUSTRY DISTRIBUTION Per cent Vanc./Vict.	Per cent Other
1984						
Agriculture	8.2	1.2	24.8	5.1	24.8	75.2
Other Primary Industry	6.9	1.0	42.1	8.6	14.1	85.9
Manufacturing	77.1	11.0	69.9	14.2	52.4	47.6
Construction	40.4	5.8	28.6	5.8	58.6	41.4
Transport, Comm. & Util.	67.9	9.7	42.1	8.6	61.7	38.3
Trade	132.2	18.9	87.8	17.9	60.1	39.9
F.I.R.E.	57.1	7.3	20.9	4.3	73.2	26.8
Other Services	255.5	36.4	148.5	36.8	63.2	36.8
Public Administration	52.5	7.5	28.5	5.8	64.8	35.2
All Industries	700.3	100.0	490.7	100.0	58.8	41.2
1989						
Agriculture	5.9	0.7	24.1	4.4	19.7	80.3
Other Primary Industry	7.9	0.9	46.1	8.4	14.6	85.4
Manufacturing	91.6	10.4	83.4	15.1	52.3	47.7
Construction	62.3	7.1	36.7	6.7	62.9	37.1
Transport, Comm. & Util.	76.2	8.6	43.8	7.9	63.5	36.5
Trade	175.8	19.9	95.2	17.3	64.9	35.1
F.I.R.E.	68.9	7.8	21.1	3.8	76.6	23.4
Other Services	335.5	38.0	175.5	31.8	65.7	34.3
Public Administration	56.9	6.4	29.1	5.3	66.2	33.8
All Industries	883.5	100.0	551.5	100.0	61.6	38.4

Notes: (1) totals may not add due to rounding
(2) Vancouver & Victoria refer to the Census Metropolitan Areas (CMA's)

Source: Planning and Statistics Division
Based on Statistics Canada Labour Force Survey (unpublished data).

This table gives us a great deal of information:

- The two major urban areas' share of total employment increased from 58.8 per cent to 61.6 per cent.
- Agriculture and other primary industries are located outside the urban areas as, to a lesser extent, is manufacturing.
- The services industries and the construction industry are clearly more heavily represented in greater Vancouver and Victoria.
- The strongest bias toward the urban areas is found in the FIRE (financial, insurance and real estate) services group.

Table 4 confirms our expectation that direct resource employment is far more important outside the major metropolitan areas of the province. The swings of the resource-based economy are, therefore, felt far more directly in the province's rural areas.

SUMMARY

In this traditional description of the economy, we have tried to provide a basic picture of the structure of British Columbia's economy. Our purpose has been to highlight trends and situations which relate to the province's resource base. This, in turn, can cast light on the dimensions and urgency of some of the issues facing the Round Table.

Over the past thirty years, British Columbia's economy has grown very significantly. This growth has not, however, been steady: the economy has been volatile, often moving with international commodity prices.

As the economy has grown, the services sector has far outstripped the goods-producing sector, now accounting for over two-thirds of the province's GDP. A similar trend is apparent if we look at employment patterns.

Our analysis also reveals that foreign trade continues to be very important to our economy. The proportion of GDP accounted for by trade has ranged between 30 and 40 per cent over the past 25 years, with no consistent trend. While there has been some increase in non-resource exports, we are still predominantly a natural-resource product exporter. The destination of British Columbia's exports has changed as we have become less reliant on the American market.

As we look at these traditional economic data, they point to the importance of the resource-based industries to our exports and to rural parts of the province. They also hold out the possibility that British Columbia, especially the urban areas, is moving towards an economy which might be termed "post-industrial." If that is indeed the case, then the quality of life which can attract skilled service workers can become a source of comparative advantage for the province.

To find out whether British Columbia is actually nearing a post-industrial scenario and what the role of our resource industries is in the economy, we have to determine what drives the economy. This is also central to the Round Table's economic advice, as very different kinds of prescriptions would be appropriate depending on whether the resource industries are central to demand and employment or whether dynamic services have taken on that role.

PART II - THE SOURCES OF ECONOMIC GROWTH

ECONOMIC LINKAGES

In the traditional approach we have taken thus far, there have been few indications of cause and effect, or what drives the British Columbia economy. We have seen the way in which natural resources respond to external demand and, in turn, tend to be a major component in the provincial economy's cycles. This does not, however, provide us with an understanding of how the different sectors of the economy interact.

As an example, consider what type of industrial activity it takes to sell plywood. Traditional measures suggest that it is simply the task of the plywood industry and its workers; however, even such a simple act requires the coordinated efforts of a number of industrial sectors. The major ingredient for plywood is, of course, wood supplied by the primary logging industry. In addition, energy and materials, such as glues and plastic sheeting, will be consumed. The plywood manufacturer will also require telephone services from the communications industry, equipment repairs and accounting services from the services to business sector, transportation services and many other products from a diversity of areas to get his product to market.

The aim of the second part of this paper is to improve our understanding of inter-industry relationships like those just described for plywood. We shall look at the linkages between provincial industries and consequently the forces which underlie economic growth. The analysis will be used to examine such questions as the importance of British Columbia's the natural resource sector and the economy's dependence on the provincial land base.

A variety of approaches can be used to examine inter-industry linkages. This paper has chosen to focus on how employment is "created." Given the Round Table's mandate, connections between the resource sector and other areas of the economy will also be emphasized. For example, while earlier sections have shown that the services sector is the largest employer in the province, some services jobs are undoubtedly the result of activity in the resource industries. Similarly, some resource industry employment will be the result of activity in other areas of the economy.

It should be emphasized that there are many approaches which one might take in looking at the structure of an economy. We have chosen the input-output methodology. Even within such a methodology, there are many decisions to make about our model's assumptions. In making these choices, we have tried to hew a middle path: there are choices which would create either greater or lesser natural

resource dependency results. In addition, we only considered approaches which were capable of yielding comparable results for the whole economy, not just isolated sectors.

Approach

Our analysis of job creation applies standard input-output methodology[8] to the final demand for goods and services produced by a given sector. Both concepts need some explanation.

The input-output system contains information on all purchases of goods and services between all sectors in the economy. Consequently, commodity flows and inputs can be reallocated to buyers, including export markets, government, business and consumers. For example, the input-output system can be used to determine how much lumber was exported and how much was purchased by any specific industry.

It is important to distinguish between two different types of purchases which take place. As an example, lumber is generally purchased by businesses as an input (e.g., a manufacturing firm may purchase lumber to create shelving to display its products or a furniture maker may use lumber to make a table). In either case the lumber is an input and the the lumber purchase can be considered intermediate demand. The situation with respect to exported lumber is different. In this case, the export is considered its final use.

---

8 This paper uses the British Columbia input-output tables for 1984, as this is the most recent year for which provincial estimates are available from Statistics Canada. Input-output tables detail production activity occurring within an economy through tables that show the total output of commodities by industry, the use of commodities by industries, commodity inputs, and the roles of producers and purchasers. The input-output system also provides a measure of value-added-by-industry GDP. Indeed, the GDP accounts and the input-output system are linked. The GDP industry accounts show total value-added by industry while, for a particular year, the input-output tables disaggregate these totals into commodity purchases. Further information on input-output methodology is provided in Appendix 2.

The total value of products acquired for final use is referred to as **final demand**. In this section, we have chosen to define final demand as expenditures on goods and services in the following categories:

- **total exports**, defined as exports to the rest of Canada and the rest of the world;
- **investment**, which includes construction, machinery and equipment purchases by business and government; and
- **government**, where the government sector includes federal, provincial, and local governments, as well as hospitals and educational institutions.

Other definitions of final demand are possible. A category often considered part of final demand but missing from our list, is consumer expenditures. For our purposes, all consumer spending is attributed to its income source. For example, a construction worker's spending on retail goods is attributed to the construction industry. In input-output terminology this approach is generally referred to as a **"closed"** model.

The result of applying input-output methodology to final demand is an estimate of the linkages between industries. In this paper we will present employment corresponding to final demand within each industry, and employment generated in other sectors as a result. Returning to our earlier example, employment in the manufacturing industry will result in some employment in the lumber sector due to the ongoing demand for wooden shelving materials.

For a specific industry, total employment effects include final demand, indirect and induced effects.

- **Final Demand Effects**

  Within an industry or sector, people will be employed to produce products specifically to meet final demand (e.g., paper produced for export or machinery manufactured for investment). Not surprisingly, this type of employment within an industry is referred to as the **final demand effect.**

- **Indirect Effects**

  To make a product, an industry purchases goods and services from other sectors. For example, to produce paper, a firm needs wood chips, energy, chemicals, machinery and even insurance policies. Orders for intermediate goods result in employment in other sectors and even in the original sector. Employment generated this way is an **indirect effect** attributable to the

original industry. For example, the paper manufacturer's demand for energy will create "indirect effect" employment in the utilities sector.

- **Induced Effects**

  Industries pay labour to produce paper or its intermediate constituents. The spending of these wages and salaries generates even more employment throughout the economy. This spin-off employment effect of such worker income re-spending is called the **induced effect**.

  An example will further illustrate this concept. Let's assume that a communications sector worker's pay is used to buy clothes and fresh fruit and vegetables. Spending the income this way supports activity in both the clothing and primary food industries -- an induced effect of the communications industry.

In the tables that follow, all induced effects are combined with indirect effects and both are attributed to the original industry.

Sectoral Effects

The results of this analysis are presented in Table 5. It shows the total employment effects of various British Columbia industries, broken down into two categories: final demand; and indirect and induced. Each category is presented as a percentage of total employment for 1984, as recorded by Statistics Canada's Labour Force Survey.

The industry breakdown follows the Standard Industrial Classification (SIC)[9].

We can also create industry groups. For example, the logging, wood and paper and allied indistries may be combined into what is usually considered the forestry sector. These industry aggregations are possible because the input-output databases are highly detailed and can be aggregated in a number of ways.

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9 Appendix 3 provides a more detailed description of SIC codes. The "household and non-business sector" includes federal, provincial and municipal governments, public hospitals and public education.

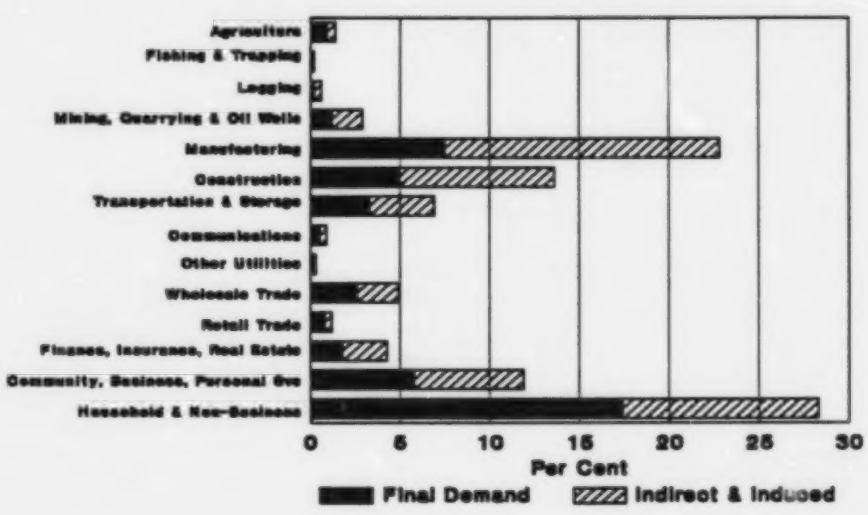
Table 5 - Employment Effects Attributable to Industry Activities

(as a per cent of total provincial employment for 1984)

SIC Sector	Final Demand	Indirect & Induced		Total
		Own Sector	Other Sectors	
Agriculture & Related Services	0.9	0.2	0.3	1.5
Fishing & Trapping	0.1	---	0.1	0.2
Logging	0.2	0.1	0.3	0.5
Mining, Quarrying & Oil Wells	1.2	---	1.7	2.9
Manufacturing	7.5	1.6	13.7	22.8
Construction	4.9	0.1	8.6	13.5
Transportation & Storage	3.3	0.2	3.4	6.9
Communications	0.5	---	0.4	0.9
Other Utilities	0.2	---	0.1	0.3
Wholesale Trade	2.6	0.1	2.2	4.9
Retail Trade	0.8	0.1	0.3	1.1
Finance, Insurance & Real Estate	1.8	0.5	2.0	4.4
Community, Business & Personal Services	5.8	1.8	4.3	12.0
Household & Non-Business	17.4	0.3	10.6	28.2
Total	46.9	5.1	48.0	100.0
Selected Industry Groups				
Logging, Wood, Paper & Allied	4.5	2.5	8.4	15.4
Mining & Primary Metals	1.7	0.2	2.6	4.5
Agriculture, Fishing, Food & Beverage	1.6	0.7	1.2	3.5

Figure 9 presents the same data in a stacked-barchart format.

FIGURE 9



An example will help illustrate what Table 5 means. The Table shows that when linkages between different industries are taken into account using input-output methodology, employment in the **logging, wood and paper and allied (or forest) sector** (see Table 5 - Detail 1) accounts for 15.4 per cent of total provincial employment in 1984. This includes jobs created because of final, indirect and induced demands. An examination of Table 5 - Detail 1 reveals that final demand for forest sector products creates 4.5 per cent of total provincial employment. In other words, 4.5 per cent of British Columbia workers are employed by the forest industry to produce products for export, investment or consumption by government.

Table 5 - Detail 1
Contribution of Logging, Wood, Paper & Allied

(as a per cent of total provincial employment for 1984)

SIC Sector	Final Demand	Indirect & Induced		Total
		Own Sector	Other Sectors	
Logging, Wood, Paper & Allied	4.5	2.5	8.4	15.4

Final demand activity within the forest sector generates work both within the sector and for other industries. As is shown in the table, forest-sector indirect and induced effects generate 10.9 per cent (2.5 + 8.4) of total provincial employment. Typical "other" sector indirect and induced effects would include jobs created when:

- accountants are hired to audit a forestry firm's books;
- retail clerks are hired as a result of forest worker spending;
- transportation services are used to deliver logs to the mill; and
- energy is used to operate pulp mill machinery and equipment.

Approximately 2.5 per cent of total provincial employment is classified as forestry "own sector" indirect effects. This would include the majority of the primary logging jobs - supplying logs to the wood and pulp mills. Other examples of own sector activities that lead to employment are:

- lumber and timber from the sawmill industry going to other wood industries; and
- pulpwood from the primary logging sector going to pulp mills.

Multipliers

Another way to look at economic spin-offs on an industry-by-industry basis is to use "multipliers."[10] These attempt to measure the activity generated in other sectors by activity in the sector in question.

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10 For expenditures, a multiplier is defined as the ratio of change in economic activity to the change in initial expenditure that brought it about. An employment multiplier can be thought of as the ratio of change in total employment to the change in industry or sector employment that brought it about.

In fact, multipliers for each industry are produced as a result of the input-output analysis. For example, using Table 5 - Detail 1, the employment multiplier for the forest industry is 3.4[11]. This means that for every final demand forest sector job, an additional 2.4 positions are created in the economy.

One of the important elements of Table 5 is the fact that the total final demand plus induced plus indirect employment equals 100 per cent. In other words, if all industries' final demand employment is grossed up by their respective multipliers, the result is total British Columbia employment[12].

Economic Drivers

To establish which sectors of the provincial economy may be considered "drivers", we will compare traditional sector employment measures to the results produced using input-output methodology. Table 6 does this, comparing actual sector employment as recorded by Statistics Canada's Labour Force Survey and the Total Employment column from Table 5.

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11 The multiplier is calculated by taking the ratio of total to final demand effects. For the forestry sector, this is 15.4 divided by 4.5, or 3.4.

12 This simple consistency check is included to address a common problem with the use of multipliers. Difficulties arise when multipliers are applied to total sectoral employment instead of to final demand alone. Double counting will result because the total employment within a sector includes some indirect and induced effects (e.g., lumber production to meet demand by the construction industry). The result of this practice is that employment effects claimed by all sectors will add to considerably more than the total for the entire economy.

Table 6 - Sector Employment Compared to Total Employment Effects

(as a per cent of total provincial employment for 1984)

SIC Sector	Actual Sector Employment	Total Employment Effect
Agriculture & Related Services	2.8	1.5
Fishing & Trapping	0.4	0.2
Logging	2.2	0.5
Mining, Quarrying & Oil Wells	1.5	2.9
Manufacturing	12.4	22.8
Construction	5.8	13.5
Transportation & Storage	5.5	6.9
Communications	2.5	0.9
Other Utilities	1.2	0.3
Wholesale Trade	5.1	4.9
Retail Trade	13.3	1.1
Finance, Insurance & Real Estate	6.5	4.4
Community, Business & Personal Services	21.2	12.0
Household & Non-Business	19.6	28.2
Total	100.0	100.0
Selected Industry Groups		
Logging, Wood, Paper & Allied	7.6	15.4
Mining & Primary Metals	2.1	4.5
Agriculture, Fishing, Food & Beverage	4.9	3.5
Commercial Services[13]	54.1	30.2

13 The commercial services component of Table 6 includes the following business sector industries: Transportation and Storage; Communications; Wholesale Trade; Retail Trade; Finance, Insurance and Real Estate; and Community, Business and Personal Services.

An examination of the table shows that for some industries, the total employment effect is greater than the traditional measure of provincial sector employment.

For example, the second column of the table shows that the logging, wood, and paper and allied industries (forest sector) create 15.4 per cent of total provincial employment. The fact that the total employment effect of the sector (second column) is higher than total sectoral employment of 7.6 per cent (first column) means that the forest sector generates more employment in other sectors of the economy than other sectors generate in the forest sector.

This reflects a general principle. If the second column is larger than the first, then that industry may be thought of as a "driver" of the economy. For example, the construction industry exhibits a particularly high ratio. In other words, construction in British Columbia tends to generate a great deal of other employment within the province.

Table 6 also shows that the total effect of a sector is sometimes less than sector employment. This is true for:

- the primary extractive industries, except for mining;
- communications and other utilities;
- retail trade;
- finance, insurance and real estate; and
- community, business and personal services.

This occurs when a large portion of the employment in these sectors is driven by demand from other industries. For example, **retail trade** accounts for 13.3 per cent of actual employment (first column). However, the industry has a total employment effect of only 1.1 per cent (second column). Much retail employment actually results from activity in other sectors. The retail trade sector is a particularly dramatic example because retail purchases are overwhelmingly made by people spending the incomes they earn in other sectors.

Logging is also an interesting example. Because there is a tendency to equate economic drivers with tangible goods producers, we might expect logging to provide a large total employment effect. In fact, there are relatively few logs which are exported or used as final products. Most logging is, in fact, carried out to satisfy the demand of the manufacturing sector (the SIC codes count both pulp and paper, and lumber as manufactured products). Hence, logging has a low employment effect, manufacturing a higher one.

Using a combination of Tables 5 and 6, it is possible to calculate what proportion of an industry's employment is attributable to other sectors. Table 7 presents the necessary information for the retail trade sector.

Table 7 - Contribution of Retail Trade

(as a per cent of total provincial employment for 1984)

SIC Sector	Actual Sector Employment	Final Demand	Indirect & Induced: Own Sector	Indirect & Induced: Other Sectors	Total
Retail Trade	13.3	0.8	0.1	0.3	1.1

As shown above, retail trade is 13.3 per cent of total provincial employment (column 1). Within the industry, final demand accounts for 0.8 per cent of British Columbia employment, while 0.1 per cent is own-sector indirect or induced, for a total of 0.9 per cent (columns 2 and 3). Thus, 12.4 per cent of employed British Columbians (13.3 less 0.9) work in the retail trade sector as a result of activity and salaries earned in other areas of the economy.

The Importance of the Natural-Resource Base

If the three industry groupings at the bottom of Table 6 can be used as a proxy for natural resource industries within the province, then the natural resource sector as a whole is a strong driver of provincial economic activity. Natural resource industries generate nearly one-quarter of total provincial employment as the total employment effects for the three sectors (logging, wood, paper and allied; mining and primary metals; and agriculture, fishing, food and beverage) sum to 23.4 per cent of total employment. This is substantially higher than the traditional estimate of 14.6 per cent. By comparison, commercial services comprise 30.2 per cent of total provincial employment, while traditional measures would ascribe to it 54.1 per cent[14].

14 The remaining employment (traditional or total employment effects) can be attributed to construction, the household and non-business sector, and non-resource manufacturing.

Merchandise Exports

The earlier tables have examined employment linkages between industries to determine whether the provincial economy is highly dependent on resources. However, the employment effects arising from merchandise export demand are also worth investigating using the input-output approach and are presented in Table 8.

Table 8 - Employment Effects of Merchandise Exports

(as a per cent of total provincial employment for 1984)

	International Exports	Exports to rest of Canada	Total Exports
Final Demand Employment	7.9%	3.9%	11.8%
Indirect Effect Employment	6.2%	2.2%	8.4%
Induced Effect Employment	9.0%	3.3%	12.3%
Total Effect Employment	**23.1%**	**9.4%**	**32.5%**

The bottom line of Table 8 shows the extent to which British Columbia was dependent on Canadian and international export markets in 1984. Roughly one-third (32.5 per cent) of total employment for 1984 is related to the export of goods either directly or through spin-off effects (indirect and induced). Furthermore, over 70 per cent (23.1 relative to 32.5) of that total employment effect was due to the export of goods outside of Canada.

The remaining two-thirds of total provincial employment can be attributed to the remaining categories of final demand -- investment and government.

We can now link the two concepts we have been developing -- industry employment effects and export dependency. Table 9 is designed to show the export dependency of provincial industries.

Table 9 - Employment Effects of Merchandise Exports Attributable to Industry Activities

(As a per cent of total provincial employment for 1984)

SIC Sector	Final Demand	Indirect & Induced: Own Sector	Indirect & Induced: Other Sectors	Total
Agriculture & Related Services	0.9	0.2	0.3	1.4
Fishing & Trapping	0.1	---	0.1	0.2
Logging	0.2	0.1	0.3	0.5
Mining, Quarrying & Oil Wells	1.1	---	1.7	2.8
Manufacturing	7.0	1.5	13.1	21.6
Construction	---	---	---	---
Transportation & Storage	---	---	---	0.1
Communications	---	---	---	0.1
Other Utilities	0.1	---	---	0.1
Wholesale Trade	2.1	0.1	1.8	4.0
Retail Trade	0.2	---	0.1	0.4
Finance, Insurance & Real Estate	---	---	---	---
Community, Business & Personal Services	---	0.2	1.1	1.3
Household & Non-Business	---	---	---	---
Total	11.8	2.1	18.6	32.5
Selected Industry Groups				
Logging, Wood, Paper & Allied	4.4	2.5	8.4	15.3
Mining & Primary Metals	1.6	0.2	2.5	4.4
Agriculture, Fishing, Food & Beverage	1.6	0.7	1.2	3.5

A close examination of the table reveals just how export-dependent certain sectors of the economy are. For example, consider once again, the forest sector. In

Table 9, we are only concerned with final demand from a single source -- exports. Thus, 4.4 per cent of total provincial employment is directly the result of forest industry exports.

The demand for forest exports creates jobs within the logging, wood and paper and allied industries (2.5 per cent of provincial employment) and in other sectors of the economy (8.4 per cent). In total, the demand for forest sector exports employs 15.3 per cent of the province's workers (see Table 9 - Detail 1).

Table 9 - Detail 1
Contribution of Logging, Wood, Paper & Allied Exports

(as a per cent of total provincial employment for 1984)

SIC Sector	Final Demand	Indirect & Induced		Total
		Own Sector	Other Sectors	
Logging, Wood, Paper & Allied	4.4	2.5	8.4	15.3

While much of forest sector activity is the result of export demand, this is not the case for all provincial industries. Construction is a good example of an industry that does not rely directly on strong export markets. Indeed, while 5.8 per cent of working British Columbians are employed in the sector (page 32, Table 6), construction is not exported directly. Table 9 shows that no construction sector employment can be directly attributed to exports. This is not an unexpected result. In terms of final demand categories, business investors, housing and government are obviously the major sources of construction demand.

Beyond the forestry and construction sectors, Table 9 contains other interesting information. British Columbia's merchandise exports are dominated by natural resource products. Using the first three industry groups as a proxy for provincial natural-resource related activity, Table 9 shows that exports from the natural-resources sector generate over 23 per cent of provincial jobs. Further, in 1984, 71 per cent of all jobs created by exports were generated by natural resource exports[15].

15 The 71 per cent figure is calculated by taking from Table 9 the sum of total employment effects due to exports for the three natural resource industries (23.2 per cent) and dividing this figure by the sum of the total employment effects due to all exports (32.5 per cent).

In summary, Table 5 shows that when **all** sources of demand are taken into account, the manufacturing and construction industries were important employment-generating sectors of the British Columbia economy in 1984. Table 9 provides a similar analysis for exports alone and shows that external demand for British Columbia's commodities generated about one-third of total provincial employment in 1984.

CONCLUSION

We began this paper by using traditional methods to look at the provincial economy and its components. An examination of British Columbia GDP and employment statistics revealed the dominance of the services sector. Services accounted for nearly 70 per cent of GDP, while 75 per cent of provincial workers were employed by services industries.

Upon further analysis, natural resources and exports were also shown to be important contributors to the provincial economy. Natural resource industries currently account for nearly 13 per cent of provincial employment, while the importance of the export sector is seen through its 37 per cent contribution to GDP (as measured by expenditures).

The importance of exports also establishes a link between resource markets and the overall performance of the provincial economy. On average, over 80 per cent of total provincial merchandise exports are classified as natural resource products. Given this dominance, changes such as a shift in commodity prices will lead to fluctuations in exports and provincial GDP.

To more thoroughly explore linkages within the British Columbia economy, the second part of this paper tried to determine which sectors functioned as drivers of the economy. To do this, we looked at inter-industry linkages using a "closed" model input-output methodology.

When inter-industry linkages are taken into account, natural resource industries are found to be drivers of the provincial economy with significant employment effects on other sectors. Using a traditional approach, this paper estimates that in 1984 approximately 14.6 per cent of provincial employment was dependent on the resource sector. In contrast, 23.4 per cent of British Columbia jobs were created by the resource sector when inter-industry linkages are taken into account. This result implies that the provincial economy continues to be heavily reliant on natural resource industries.

The linkage approach also found that total exports have a combined employment effect of about one-third of all provincial jobs -- not surprising, given that much resource industry output is exported.

The services sector has grown over the past thirty years, from 60.0 per cent of GDP in 1961 to 67.7 per cent in 1989. While these numbers show that the services sector is the largest GDP component, they do not imply that a radical change in provincial economic structure has occurred. Further, the analysis of industry linkages shows that services, as a block, do not generate economic growth the way that the

natural-resource dependent sectors do. In the latter half of this paper, we see that commercial services industries account for 30.2 per cent of all jobs, far below the traditional estimate of 54.1 per cent of total employment. It is possible that certain service industries are potent economic drivers in their own right. However, the services categories used in this paper are not detailed enough to permit further investigation.

The analysis of industries and linkages also reveals differences between British Columbia's major urban centres (Vancouver and Victoria) and the rest of the province. Rural areas, as one would expect, are far more dependent on natural-resource based activity.

We have argued throughout this paper that the province's resource dependency has led to a volatile economy. While British Columbia has successfully diversified export markets, it has not similarly diversified its exported products.

The fact that the provincial economy continues be resource-dependent has a number of implications. The most important is that moving away from this dependence is likely to result in serious economic dislocations.

If restructuring is difficult then a question must be asked - is it necessary? One obvious benefit is that restructuring would reduce the economy's volatility. However, this paper also suggests that the need for restructuring largely hinges on whether existing resource practices are sustainable. British Columbia economic growth has generally been the result of increased resource access and land use. If earlier activities have been conducted on a non-sustainable basis then restructuring must proceed if the economy is to continue to grow.

Any strategy of reducing resource dependency must address the issue of comparative advantage and replacing resource extraction with other job-generating activities. In looking at British Columbia's situation, one of the clear opportunities available is to use the quality of life and the beauty of the province as a magnet to attract dynamic services industries whose location is independent of access to resources. In the end, therefore, we should not view an environment versus economy trade-off as fully describing British Columbia's choices. Indeed, the future of our economy may well depend upon the environmental quality we protect.

The facts about the British Columbia economy presented in this paper will not in themselves determine land use or sustainable development decisions but they do provide a basis for understanding how the British Columbia economy works, how it has grown and how sectors are interrelated. Such a common basis of understanding must be in place before intelligent land use decisions can be made.

POSTSCRIPT FOR THE FUTURE: A DEMOGRAPHIC PERSPECTIVE

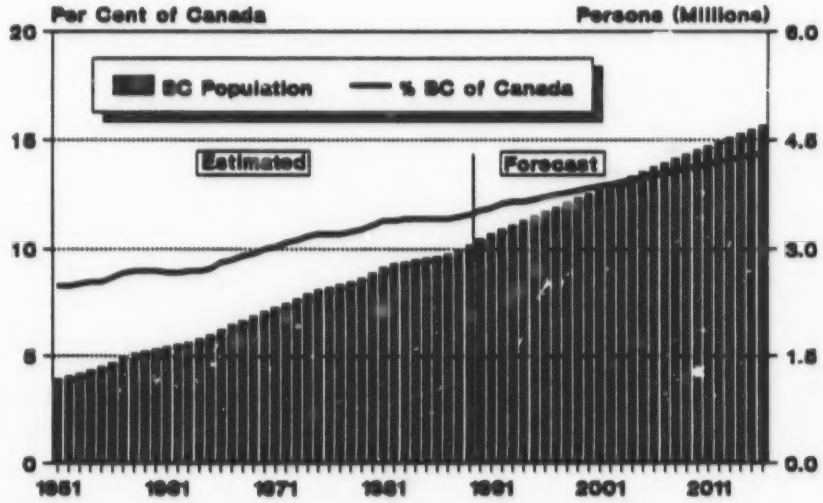
While the decisions we face today are difficult enough, they will become more difficult still. Employment and land use are affected by population, and British Columbia's population will increase.

Figure 10 shows us that British Columbia's current population of 3.1 million is expected to increase by over 50 per cent in the next 25 years. It will grow at a faster rate than Canada as a whole.

If the current industrial structure of the provincial economy persists, the growing population will increasingly demand a continuous supply of the natural resources that provide employment and wealth creation. They will also demand a clean and attractive environment for leisure activities. In addition, the demand for public services like transportation, parks, schools, housing and waste management will continue to increase as the population grows.

FIGURE 10

British Columbia Population Forecast



Population growth has not occurred evenly throughout the province. As shown in Table 9, five Development Regions recorded population losses during the five years from 1984 to 1989, while Vancouver Island and the Lower Mainland showed strong growth. Some of this shift can be attributed to restructuring within the natural-resource based industries. Additionally, the major urban areas have increasingly provided services sector employment. Combined with the tendency of migrants to British Columbia to locate in the urban centres, we can expect growth pressures to be particularly acute in and around the larger metropolitan areas.

Table 10 - B. C. Population by Development Region

	1989 (thousands)	Change 1984-1989 (per cent)
Vancouver Island/Coast	568.5	6.7
Lower Mainland/Southwest	1,705.2	12.9
Thompson/Okanagan	353.4	1.7
Kootenay	127.0	-8.8
Cariboo	144.6	-6.1
North Coast	62.1	-5.5
Nechako	38.6	-5.2
Northeast	53.9	-6.4
British Columbia (Total)	3,053.3	7.2

In conclusion, the growth and urbanization trends of the provincial population suggest that land use issues and resource conflicts are likely to become more acute over time. Increasing population pressures are likely to place demands on land-use, especially in and around the urban areas, while in the rural areas the declining share of population combined with the economic dependency on natural resources implies a different range of land-use options.

APPENDIX 1

Description of the Provincial Income and Expenditure Accounts

In the system of economic accounts, the *Income Account* is derived by summing the incomes earned by the factors of production (i.e., land, labour and capital). The *Expenditure Account* describes how people, businesses, government, exporters and importers spend their incomes.

Components of the B.C. Income and Expenditure Accounts.

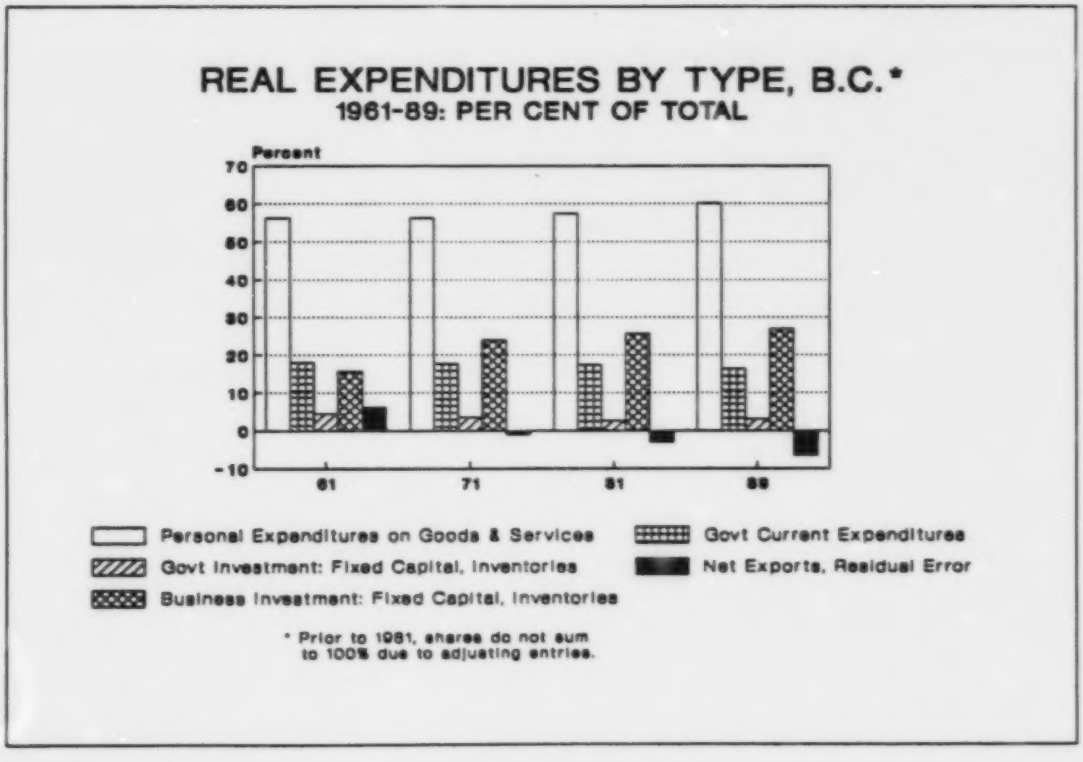
INCOME ACCOUNT
Wages, Salaries and Supplementary Labour Income
Corporate Profits
Miscellaneous Investment Income
Unincorporated Business Income
Inventory Valuation Adjustment
Net Domestic Income
plus Capital Consumption Allowances
GDP at Factor Cost
plus Indirect Taxes less Subsidies
GDP at Market Prices

EXPENDITURE ACCOUNT
Personal Expenditures on Goods and Services
Investment:
Residential Construction
Non-residential Construction
Machinery and Equipment
Government Expenditures on Goods and Services
Value of Physical Change in Inventories
Merchandise Exports:
Rest of World
Rest of Canada
less Merchandise Imports:
Rest of World
Rest of Canada
plus Net Service Exports and Residual Error
GDP at Market Prices

As they are ultimately measuring the same thing, the income and expenditure accounts should both produce the same estimate of GDP. However, because of data limitations, the results are usually slightly different. In the national economic accounts, the difference, or residual error, is halved and allocated to both accounts. In the provincial economic accounts, all of the residual error appears in the expenditure account included with net exports of services.

Expenditure Account

As is shown in the block diagram above, GDP as measured by expenditures is composed of consumer, government, investment, export and import spending. Over time, the contribution to GDP of some of these components has changed while others have remained relatively stable. For example, personal expenditures on goods and services have accounted for between 50 and 60 per cent of GDP since 1961. Business investment in fixed capital and inventories represented 21 per cent of total GDP in 1989, compared to 19 per cent in 1961. Government expenditures on goods and services increased slightly between 1961 and 1989, going from 14 to 16 per cent of GDP during that period. In 1961, net merchandise exports represented 10 per cent of total GDP, compared to 6 per cent in 1989. Net exports of services cannot be measured directly and are included with the residual error of the estimate.



APPENDIX 2

Description of Input-Output Methodology

Structure

Input-output models were originally developed to trace the interactions between industries within an economy. In contrast to earlier models in which industries produced only one output, the input-output model follows the more detailed variation adopted by Statistics Canada[16], in which industries can be shown to produce one or more products.

The input-output system is made up of three main tables:

- The industry technology table which determines what intermediate goods and services, including labour, are required for each industry to produce a given quantity of commodities.

- A market share table allocating demand for commodities to producing industries. This table determines what amounts of a particular commodity each industry produces. If each industry produced only one commodity, the structure would be simpler. However, many industries produce more than one commodity. For instance, sawmills produce mainly lumber and timber which is predominantly export-driven. As a by-product, sawmills also produce pulpwood chips which are used by the pulp and newsprint industry as an intermediate input. The market share table, in conjunction with the industry technology table, shows that the demand for pulp and newsprint will be supported by both sawmill activity (although pulpwood chips are a byproduct) as well as the primary logging industry which supplies logs for pulping.

- The final demand table, which provides commodity detail for all the components of final demand, corresponds in aggregate to the Expenditure Account of the Provincial Economic Accounts. As noted in the main text of this paper, this includes Investment (Residential and Non-Residential Construction, as well as Machinery and Equipment purchases by Business and Government), International and Interprovincial Exports, Change in Inventories, and Net Government Expenditures. Household expenditures

16 For a full description of concepts, definitions and model mathematics, see Statistics Canada publication 15-510, The Input-Output Structure of the Canadian Economy.

are also included in the final demand table, although in the "closed" version of the input-output model these are treated as an intermediate, supporting industry instead of as final demand.

In the input-output system, transactions are detailed by type of good or service purchased, as labour costs, as taxes or as contributions to profit. The three tables are balanced, reflecting the usual accounting requirements that all expenses, labour costs and profits (i.e., inputs) total to gross sales (i.e., outputs). In addition, the tables present a balance of the supply and demand for each commodity (i.e., domestic production plus imports equals business demand plus final demand plus exports).

The database for the B.C. Input-Output model uses 1984 data supplied by Statistics Canada from their full interprovincial input-output model.

Valuation

Another aspect of the input-output tables is that entries reflect producer or "factory gate" prices. To compare purchaser prices to producer prices, we observe that the cost to a purchaser, whether an industry or a component of final demand, comprises:

- the producer's price of a commodity,
- transportation charges,
- retail and wholesale trade margins if the commodity passes through one or more trading establishments, and
- commodity taxes (sales and excise).

Thus transportation, trade and tax margins are added to the producer or "factory gate" price to obtain the purchase price. In the input-output system, commodity values are all recorded at producer prices. The margins are recorded as separate entries to allow for totalling to purchaser prices.

Input-Output Assumptions and Limitations

The input-output model estimates the activity levels throughout the economy required to match a given level of final demand. As such, it is a demand-driven model and it produces demand-based multipliers. Without additional assumptions and considerations, which would be different for each sector, it cannot estimate the effect of supply constraints.

The input-output model is a linear model of economic relationships. It assumes that there are no capacity constraints, no substitution effects and no economies of scale.

The behavioral relationships within the model, despite considerable detail on the inputs consumed by industries, are, therefore, relatively simple.

The database is seven years old. However, because the technical relationships between industries tend to change slowly, the resulting industry multipliers are assumed to be relatively stable over time. Despite the various simplifications recognized in the input-output approach, it is still widely viewed as the conventional way to estimate industry multipliers.

Another feature of the input-output model is that it is static. The model traces the propagation of demand throughout the economy but it does not reflect the timing of the various spin-off effects.

The input-output model estimates economic effects for the entire province. When economic effects within a community or a provincial region are needed, these provincial results may not be applicable or, at best, they would provide very rough estimates. To obtain local effects, specific information on the economic base for the community and the extent to which goods and services are supplied from outside that community should be incorporated.

Most industry analysts use multipliers from "closed" input-output models, which trace the effect of consumer spending back to the sectors providing labour income. These models have been criticized for the validity of some of their assumptions. On the one hand, many households live off pensions, investment income, or government transfers such as welfare, which do not correlate strongly with industrial activity. "Closed" models, therefore, may tend to overstate the respending effect. On the other hand, investment and government spending are treated as independent activities but they should, in fact, be assumed to grow faster or slower in line with overall economic activity. The "closed" models ignore these effects. Because these effects tend to offset one another, "closed" input-output models are considered to provide suitable estimates for most situations.

Components of final demand, particularly exports and investment, have strong cyclical patterns and this means that some of B.C.'s industries are also cyclical. For example, when forestry exports are at the peak of their cycle, the forestry sector and its upstream effects will make a higher contribution to GDP. The same could be said for mining exports and the construction industry. Results should be interpreted accordingly.

APPENDIX 3

Standard Industrial Classification (SIC) 1980

This is an exhaustive list of industrial divisions and two-digit SIC codes. Series gaps do not imply missing industries.

Division A

AGRICULTURAL AND RELATED SERVICE INDUSTRIES

Major Group

01 Agricultural Industries
02 Services Incidental to Agriculture

Division B

FISHING AND TRAPPING INDUSTRIES

Major Group

03 Fishing and Trapping Industries

Division C

LOGGING AND FORESTRY INDUSTRIES

Major Group

04 Logging Industry
05 Forestry Services Industry

Division D

MINING (INCLUDING MILLING), QUARRYING AND OIL WELL INDUSTRIES

Major Group

06 Mining Industries
07 Crude Petroleum and Natural Gas Industries
08 Quarry and Sand Pit Industries
09 Services Incidental to Mineral Extraction

Division E

MANUFACTURING INDUSTRIES

Major Group

10 Food Industries
11 Beverage Industries
12 Tobacco Products Industries
15 Rubber Products Industries
16 Plastic Products Industries

17 Leather and Allied Products Industries
18 Primary Textile Industries
19 Textile Products Industries
24 Clothing Industries
25 Wood Industries
26 Furniture and Fixture Industries
27 Paper and Allied Products Industries
28 Printing, Publishing and Allied Industries
29 Primary Metal Industries
30 Fabricated Metal Products Industries (except Machinery and Transportation Equipment Industries)
31 Machinery Industries (except Electrical Machinery)
32 Transportation Equipment Industries
33 Electrical and Electronic Products Industries
35 Non-Metallic Mineral Products Industries
36 Refined Petroleum and Coal Products Industries
37 Chemical and Chemical Products Industries
39 Other Manufacturing Industries

Division F

CONSTRUCTION INDUSTRIES

Major Group

40 Building, Developing and General Contracting Industries
41 Industrial and Heavy (Engineering) Construction Industries
42 Trade Contracting Industries
44 Service Industries Incidental to Construction

Division G

TRANSPORTATION AND STORAGE INDUSTRIES

Major Group

45 Transportation Industries
46 Pipeline Transport Industries
47 Storage and Warehousing Industries

Division H

COMMUNICATION AND OTHER UTILITY INDUSTRIES

Major Group

48 Communication Industries
49 Other Utility Industries

Division I

WHOLESALE TRADE INDUSTRIES

Major Group

50 Farm Products Industries, Wholesale
51 Petroleum Products Industries, Wholesale
52 Food, Beverage, Drug and Tobacco Industries, Wholesale
53 Apparel and Dry Goods Industries, Wholesale
55 Motor Vehicle, Parts and Accessories Industries, Wholesale
56 Metals, Hardware, Plumbing, Heating and Building Materials Industries, Wholesale
57 Machinery Equipment and Supplies Industries, Wholesale
59 Other Products Industries, Wholesale

Division J

RETAIL TRADE INDUSTRIES

Major Group

60 Food, Beverage and Drug Industries, Retail
61 Shoe, Apparel, Fabric and Yarn Industries, Retail
62 Household Furniture, Appliances and Furnishings Industries, Retail
63 Automotive Vehicles, Parts and Accessories Industries, Sales and Service
64 General Retail Merchandising Industries
65 Other Retail Store Industries
69 Non-Store Retail Industries

Division K

FINANCE AND INSURANCE INDUSTRIES

Major Group

70 Deposit Accepting Intermediary Industries
71 Consumer and Business Financing Intermediary Industries
72 Investment Intermediary Industries
73 Insurance Industries
74 Other Financial Intermediary Industries

Division L

REAL ESTATE OPERATOR AND INSURANCE AGENT INDUSTRIES

Major Group

75 Real Estate Operator Industries (except Developers)
76 Insurance and Real Estate Agent Industries

Division M
BUSINESS SERVICE INDUSTRIES
Major Group
77 Business Service Industries

Division N
GOVERNMENT SERVICE INDUSTRIES
Major Group
81 Federal Government Service Industries
82 Provincial and Territorial Government Service Industries
83 Local Government Service Industries
84 International and Other Extra-Territorial Government Service Industries

Division O
EDUCATIONAL SERVICE INDUSTRIES
Major Group
85 Educational Service Industries

Division P
HEALTH AND SOCIAL SERVICE INDUSTRIES
Major Group
86 Health and Social Service Industries

Division Q
ACCOMMODATION, FOOD AND BEVERAGE SERVICE INDUSTRIES
Major Group
91 Accommodation Service Industries
92 Food and Beverage Service Industries

Division R
OTHER SERVICE INDUSTRIES
Major Group
96 Amusement and Recreational Service Industries
97 Personal and Household Service Industries
98 Membership Organization Industries
99 Other Service Industries